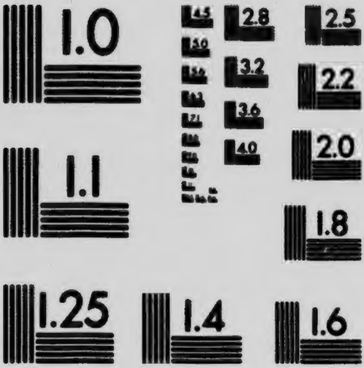

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)

b1

TORONTO PUBLIC LIBRARY
REFERENCE
SEP 16 1920

# Measurement of Educational Waste

in the

# Toronto Public Schools

◆

An Historical and Statistical Treatment

showing how the schools are grappling with the problem of reducing social and financial losses resulting from

unnecessarily slow progress of normal children through the grades, and

the dropping out of children from school before the completion of the public school course

with suggestions for improvements in administrative methods.

This report is intended primarily for the professional schoolmen and school-women of the city.

◆

ISSUED BY
THE BUREAU OF MUNICIPAL RESEARCH
189½ CHURCH STREET, TORONTO
MAY, 1920

6A6811

## TABLE OF CONTENTS

PAGE

INTRODUCTORY ... ... ... ... ... ... ... 3

SUMMARY OF SUGGESTIONS BASED ON FINDINGS OF THIS STUDY ... ... ... ...... ... 4

THE GROWING APPRECIATION OF THE SERIOUSNESS OF EDUCATIONAL WASTE, AS EVIDENCED BY OFFICIAL REPORTS ... ... ... ... ... 6

EDUCATIONAL WASTE FROM AN OUTSIDE POINT OF VIEW ... ... ... ... ... ... ... 15

OVER-AGE ... ... ... ... ... ... ... ... 19

RETARDATION AND DROPPING-OUT (ELIMINATION) 27

# Measurement of Educational Waste in the Toronto Public Schools.

---

## INTRODUCTORY

The title, "Educational Waste," is not an alluring one. It suggests scientific measurements, dry statistics and factory by-products. There is educational waste, however, and no matter how unattractive such a topic may be at the outset, the community cannot afford to ignore the methods which are being developed to locate its incidence, to measure its amount, and develop measures to combat it. As a matter of fact, no inquiry is more stimulating to the imagination and gives more hope of effecting large savings in human life and values.

It is true that the highest spiritual and intellectual products of our schools cannot be measured; it is equally true that accurate measurements of those things which can be measured provide a necessary foundation for those processes out of which spiritual, moral and intellectual results grow. Just as there is no necessary connection between spirituality and personal inefficiency, unscientific methods of school administration provide no guarantee of a fine educational product. Quite the contrary. The danger is not in making measurements but in worshiping measurements; trying to measure things that cannot be measured, or in considering measurements as an end in themselves—not as a means to an end.

The following paragraphs from Chief Inspector Cowley's report of 1918 express well the true place of educational measurements in school administration:

> "In its bulletins on Academic and Industrial Efficiency the Carnegie Foundation has presented the results of a searching examination of higher institutions of learning. Through an intensive study of retardation of pupils the Sage Foundation also has endeavoured to measure educational efficiency. The numerous surveys of civic and state school systems made in recent years are likewise evidence of the growing inclination to test the efficiency of the schools according to the modes and standards of business life.
>
> "While such concrete standards of educational measurements may be found very helpful in testing important phases of school work and management, there is need for a word of caution against attaching too much importance to the absolute value of such standards and of the aspects of educational work which they stress. In its spirit and purposes and in the 'material' with which it deals a school is essentially different from a factory, a banking house, a transportation line or a departmental store. While the most approved principles and tests of modern business practice ought to find expression in the administration, organization and operation of the schools, the teachers of experience and insight will not need to be told that the best fruits of education are to be found in the quality of the moral habituation developed in the pupils. Under the guidance of such teachers a system of educational measurements may be made a valuable auxiliary in the management of the school without dehumanizing its life or obscuring its higher purposes."

## SUMMARY OF SUGGESTIONS BASED ON FINDINGS OF THIS STUDY.

The causes of retardation, elimination and dropping-out are very thoroughly understood in Toronto, as is evidenced by the 1913 and later reports. It is quite unnecessary to discuss these causes. Nor is it absolutely necessary, although quite desirable, to estimate the amount of the human and financial loss resulting from preventable school waste. This is everywhere acknowledged as a serious matter to the city, the province and the nation. Combatting the waste, however, requires two things:

1. Means of measuring gains.
2. Weapons of offence.

In measuring, two things are demanded—

a—An accepted standard.
b—Equal divisions of that standard.

In Toronto we have no accepted standard for the length of the elementary school course for the child of ordinary ability and energy. Some place it at six years, some at six and one-half years, and some practically at eight years, while the average time spent above the Kindergarten seems to be seven years and three months. It is true of course that children vary in ability, but this is no reason why we should not establish norms for purposes of mass measurement and as indications of proper treatment in cases of individuals. Neither is there agreement as to length of the units of the course. All agree on the length of the last four grades, most on the first, while for the other three there is great disagreement, both in theory and practice. We have in effect a foot rule of varying length, with inches marked thereon of lengths varying from one school to another and from time to time. Measurements for certain phases of education are possible and necessary. Why not agree on a measuring stick which applied over a term of years will indicate the lines of advance?

The following suggestions are offered as a basis for discussion:

1. That the education department be requested to allow the Board to adopt a seven-year course of study above the Kindergarten.
2. That this course be divided into seven grades of one year each and that the present anachronistic division by book-forms be abolished.
3. That each of the seven grades be divided into an "A" and "B" division, each equivalent to a half-year, so that when a child fails of promotion he will not need to repeat a whole year's work. This would also facilitate double promotion by minimizing the length of the necessary jump.
4. That each division on completing its work proceed immediately to the work of the next division, no matter what the date may be, and that transference from division to division be frequent and easy.

5. That special teachers, for individual or small-group instruction, be employed to make such transfers easy for children capable of making rapid progress without affecting their health.
6. That children be graduated when they are ready to graduate, but that worth while work be provided for early graduates until such time as they may be admitted to the high schools.
7. That as soon as authority is obtained, if necessary, high schools admit pupils twice a year or oftener.
8. That in every school of eight rooms or over a special class, or special classes, be formed for atypical children whether of the "slow" or the "rapid progress" group.
9. That all feeble-minded children be removed from the regular grades and special classes for normal children, and be segregated in classes where they can receive the sort of education to which they respond. This should be done at once, even if it is necessary to rent private houses for the purpose. The extra expense would soon be offset by the diminishing membership of the schools due to the more rapid progress of children through the grades.
10. That in the early grades one half of each day be devoted to manual work and physical education, and that in the later grades greater opportunity be given for such work.
11. That assistants to principals be decided on not according to the number of children in the school alone, but that the number of foreign children, the social and economic conditions of the neighborhood and other non-arithmetical considerations be taken into account.
12. That, if necessary, the right to allow greater lee-way with regard to the course of study in particular schools and in individual cases be obtained from the provincial authorities.
13. That capacity to perform the next term's work be the only consideration in determining promotion of a child from one grade or half grade to another—the principal and teacher concerned being the final authorities.
14. That portable projection apparatus including motion picture machines be provided for every school to assist in teaching of geography, history, nature study and literature, decreasing the time spent on these subjects and improving the product.
15. That every teacher have at least two divisions in her room, teaching and seat work alternating, and that a short time each day be devoted to individual teaching by the regular class teacher.

Most of these suggestions have appeared before in official reports and public discussions. A few—such as 13, 14 and 15—are in practical operation, at least partially, in some schools. It is time that some action be taken either by rejecting them or putting them into general practice.

# THE GROWING APPRECIATION OF THE SERIOUSNESS OF EDUCATIONAL WASTE, AS EVIDENCED BY OFFICIAL REPORTS

Twenty-five years ago the subject of educational waste rarely crept into public school reports. Conditions known under the name of educational waste had, however, formed a large part of the thinking, and had contributed largely to the cares of the individual teacher, but except at rare intervals they had been given entirely inadequate attention by administrative boards and officials, and, when considered, had been looked upon rather as evils inherent in the nature of things. Finally, however, the various forms of such human waste obtruded themselves so forcibly on the attention not only of the school authorities but of the general public that questions began to be asked as to the necessity for such conditions and their possible remedies. The manual training movement in its inception was greatly strengthened by its bearing on the problem of educational waste, and some of the first references in public reports to such subjects as over-age and retardation are found in their manual training sections. The same thing is true of the school Medical Inspection movement. One of the reasons advanced for physical education was its indirect effect in stimulating progress in regular studies.

As would be expected, early discussions of school waste were largely based on unanalyzed observation and a priori considerations, and many of the remedies proposed were too partial or promised altogether too much. One of the earliest, if not the earliest, extended references in Toronto School reports to educational waste is contained in the Manual Training Section of the report of the Board of Education for 1907. Owing to the elementary nature of educational statistics at that time the data used and the method of handling them are not beyond criticism, but the discussion is so sound in fundamentals and so prophetic of the future anxiety concerning school waste that we quote the following from pages 44-45 of the report:

"The following figures are taken from the annual reports of the Chief Inspector:

REGISTERED NUMBER IN ATTENDANCE.

| | | |
|---|---|---|
| 1906 | Fourth Book | 6916 |
| | Fifth Book | 1094 |

"These pupils may reasonably be supposed to have enrolled first time during the years 1898-1901. The reports for those years give the following enrollment:

| | | |
|---|---|---|
| 1898 | First Book | 8902 |
| 1899 | " " | 8882 |
| 1900 | " " | 8905 |
| 1901 | " " | 9184 |

> "The average enrollment during these four years was 8968, that is 8968 pupils enrolled in the First Book have dwindled down to 6916 pupils in the Fourth Book and further to 1094 pupils in the Fifth Book. Even if we add to the figures for Fifth Book 900 pupils entered for the first year in the four Collegiates and the Technical High School, it is evident that only [illegible] of the pupils who enroll in the First Book eventually enter the Fourth Book and only 22% of our pupils enter the Fifth Book or the first form of the High School. Briefly, it is clear that more than three-fourths of our pupils do not accept the complete elementary course.
>
> "Two causes bring about the desertion of this large percentage. To stern necessity must be ascribed a small share, but by far the larger proportion of pupils leave our schools before having completed the course of study because they and their parents believe that the school provides little further of real value. They think that outside of the school there is offered a better training for life-work than inside the school. But a careful examination of the subsequent history of these boys shows that on the average two years are wasted after leaving school in their efforts to find suitable employment and secure an industrial training. It would be an economic gain to the state as well as a direct individual gain if these boys could be retained in school two or three years longer and definitely given the industrial training which they require. It is here affirmed that the large majority would remain if the manual work in the Fourth and Fifth Book classes were increased and the other subjects modified to suit industrial needs. This new course would seek to provide an education for those who would ultimately seek industrial work EQUAL to that already provided for those who intend to further prosecute their studies with commercial or professional aims. . ."

The corresponding section of the 1910 report refers to the 1907 report, and states "that nearly 80% of our boys and girls leave school at 14 years without accepting all that our course of study provides." It further states "that in the City of Boston, as the result of an experiment in 'Day Industrial Classes' in 1908, the percentage of pupils who stay for a longer period in school has been much increased, to the manifest economic advantage of the State." In the 1911 report the Superintendent of Manual Training returns to the subject. In the following quotation from p. 33 the use of the word "retarded" is worthy of note:

> "In the course of my visits to Third Book classes I have frequently remarked the presence of one, two or three pupils in each class who are much older and much more developed physically than their comrades in the same class. I do not refer to the occasional feeble-minded or mentally defective child, but to those retarded pupils who are unconsciously indicating that the book training they are receiving is not suited to them. They are the 'bête noir' of the teacher and a drag on the work of the ordinary pupils."

The very valuable 1911 report of the Medical Inspector is replete with references to retardation, its causes and means of dealing with it. Everyone interested in the growth of the movement for eliminating school waste should refresh their memories by reviewing its pages. Below are several quotations:

(a) "Many pupils are backward purely and simply because of defective vision, defective hearing, adenoids, which may also cause deafness, enlarged tonsils, enlarged glands, or general malnutrition and physical weakness.

(b "Let me here include the following tables taken from the pamphlet issued by the Russell Sage Foundation on 'The Relation of Physical Defects to School Progress.' The children were from ten to fourteen years of age:

|  | —Mentality— |  |  |
|---|---|---|---|
| Physical Defect Present. | Dull | Normal | Bright |
| Carious teeth | 42 | 40 | 34 |
| Defective vision | 24 | 25 | 29 |
| Adenoids | 15 | 10 | 6 |
| Enlarged tonsils | 26 | 19 | 12 |
| Enlarged glands | 20 | 13 | 6 |

"Very many children have more than one of these defects, which would increase the number in the first column. About one in every two children has seriously defective teeth (90% have carious teeth); one in two has enlarged glands; one in four has enlarged tonsils; one in eight has adenoids. If we assume that the average child without physical defects of any kind will complete the eight grades of the public schools in eight years—a year to a grade—how long will it take the physically defective child to complete the eight grades?

The table below shows the effect of various physical defects on the time taken to complete the course:

| Children with | | take, on the average, | |
|---|---|---|---|
| Children with | defective vision | take, on the average, | 8 years |
| " " | carious teeth | " " " | 8½ years |
| " " | enlarged tonsils | " " " | 8 7/10 years |
| " " | adenoids | " " " | 8 1/10 years |
| " " | enlarged glands | " " " | 9 2/10 years |

"(Defective vision. Later disaster overtakes the child if defect is not remedied by glasses. It is a matter of common observation that the brightest and most studious children have this defect.)

"That is to say, the time required to complete the public school course is increased from ½ to nearly 1½ years for a single physical defect. To this cause, then, can be ascribed one, two or more wasted years of a child's life, besides the possibility of a permanent and irretrievable damage to its physical development, its beauty, and its efficiency. The futile attempt to impart instruction to pupils whose mental faculties are dulled by easily remediable physical defects is a national burlesque on ordinary common sense.

"In our schools at least 40% must be retarded by such defects, physical defects that could be so easily removed."

## BACKWARD CHILDREN.

(c) "Classes for backward children. How to deal with the backward child, the mentally defective child, and the anaemic and poorly nourished child, has been given considerable attention by the sub-committee on Medical Inspection. It is a fairly complex problem, involving as it does the outlay of considerable money. The most encouraging part of it is the case of the backward child. A trained teacher, who has the faculty of getting the best out of children, who can rouse their enthusiasm in their work, stimulate their interest and mental activity, placed in charge of not more than 20 to 25 pupils, can accomplish wonderful results in a very short time. Here a great deal of personal attention is required. The difficulty for this child, heretofore, has so frequently not been mere stupidity or sub-normal mentality, but simply that it did not understand, and the teacher was not able to give that individual attention which would have cleared away its difficulties. A New York report gives the following causes for backwardness:

1. Truancy or other cause of irregular attendance.
2. Late entrance or non-English speaking.
3. Frequent transfers.
4. Frequent changes or prolonged absence of teachers or inefficient teaching.
5. Physical defects.
6. Large classes and "lockstep" promotion.
7. Subnormal mentality.

"In the majority of our schools one of these classes would be a great help for pupils who for any reason are behind. These pupils, with the exception of the mentally subnormal, frequently return to their grade within a year, and not only keep abreast of the rest of the class, but often surpass them. No other effort for the children gives more encouraging results than these classes.

### THE FEEBLE-MINDED.

> "It is not possible for the medical inspector to spend much time in examination of the mentally subnormal. There are, of course, cases that need very little investigation, and a casual examination reveals the defect. But there are borderline cases, on the other hand, that need several examinations, careful investigation, comparison, and earnest study, considering the history, the observations of the teacher, and seeking as wide a knowledge of the child as can be obtained. At times it becomes a most difficult problem, indeed, to separate the mentally subnormal from the mentally slow, dull, or backward. The mentally backward child can be educated, trained and developed into a useful, self-supporting, responsible citizen; the mentally defective child never. But they can be trained along industrial lines and made productive. Sufficient recreation, sufficient education to be able to read and write, if possible, and training in some industrial pursuit will give these children the best chance for their share of the happiness of life. The British Royal Commission defines a feeble-minded person as one who is capable of earning a living under protected circumstances, but is incapable of competing on equal terms with its normal fellows or of managing himself and his affairs with ordinary prudence. It is of higher mentality than the imbecile, just as the imbecile is of higher mentality than the idiot. Their summing up of the whole question of special classes for backward or physically defective children is as follows: 'We believe that by itself, and without any modifications and changes in any other directions, the Act (for special classes) cannot meet the demands of the mentally defective,' and declare that the mentally defective child should be under one continuous authority; that the Board of Education should not be that authority; that the public educational system was not intended, and is not suited, for the teaching and training of mentally defective children; that their mental status, their irresponsibility, is the only real basis for state and municipal care."

The 1912 report of the Medical Inspector contains much material bearing directly or indirectly on the problems of retardation and dropping out. The following on backward children is an illustration of the early emphasis on the relations of the physical condition of children to school waste:

### BACKWARD CHILDREN.

> "There are still many strenuous advocates who maintain that the pabulum supplied in the Public Schools should consist of a knowledge of reading, writing and arithmetic. Many to-day would add to this diet a knowledge of spelling, grammar, composition, history and geography. Quite a number would add to this by way of dessert a little knowledge of art, music, domestic science and manual trades. Heretofore this diet has been served up to the child, irrespective of its physical condition. Many a child got dyspeptic and dropped out."

The ever-increasing reference in the school reports to retardation, over-age and elimination culminated in the very unusual report of 1913. This report marks a distinct stage in the life of the Toronto School system. Previously, consideration of educational waste, so far as reports were concerned, was confined largely to special teachers or medical inspectors. In this report the educational specialists and the public school inspectors discharged a broadside which changed the guerilla warfare of previous years into the active campaign still in progress. Any movement, in order to achieve success, must be brought out into the light of day, where it will attract public attention and secure the irresistible approval of public opinion. It is no longer possible for the community to rest content with past achievements in education.

"Pointing with pride" has not been, and should not be, succeeded by "viewing with alarm," but the movement for studying and, where possible, measuring educational processes and achievements has received a great impetus, and will not let up until our schools have caught up with and adjusted themselves more completely to those conditions which have been brought about by the stupendous economic, industrial and social changes which have taken place in the province during the last fifty years.

## The Discussion of Educational Waste in the 1913 Report.

Of the five reports of District Inspectors, four treated rather fully with the problems of school waste in their districts, discussing such topics as over-age, retardation and dropping out. In all, about 17 pages are devoted to these topics.

The late Mr. W. F. Chapman, in his report, referred to all the chief aspects of educational waste, retardation, instruction of feeble-minded in regular classes, dropping out of school before completing the work of the public school course, etc. He recommended continuation courses, catch-up classes, and the removal of feeble-minded children from special classes for retarded children.

Mr. W. H. Elliott included in his report the first tables appearing in Toronto reports in recent years showing the distribution of pupils by grades, ages, and number of terms spent in one grade. The table below gives the number and percentage of children in his district over the average age for their grades and who had repeated their grades:

| SCHOOL | Total No. in School | No. above average age for grade | % of pupils above average for grade | Number of Repeaters | % of Repeaters |
|---|---|---|---|---|---|
| Alexander Muir | 975 | 336 | 34 | 311 | 31.5 |
| Clinton Street | 874 | 307 | 35 | 221 | 25 |
| Crawford Street | 325 | 148 | 45.5 | 94 | 29.5 |
| Dewson Street | 1,119 | 225 | 20 | 382 | 25 |
| Dovercourt | 1,025 | 287 | 28 | 301 | 29 |
| Essex Street | 1,212 | 345 | 28 | 364 | 30 |
| Givins Street | 1,014 | 352 | 35 | 243 | 24 |
| Grace Street | 798 | 268 | 34 | 305 | 38 |
| Joseph Workman | 156 | 53 | 34 | 58 | 37 |
| Kent | 1,650 | 279 | 17 | 435 | 26 |
| McMurrich | 682 | 178 | 26 | 243 | 36 |
| Pyne | 628 | 179 | 27 | 242 | 39 |
| TOTALS | 10,458 | 2,957 | 28.27 | 3,199 | 30.6 |

Following this table there is a remarkable discussion of retardation and over-age. Excerpts illustrative of the tenor of the report follow:

"Of the 10,458 pupils in the various grades, 2957, or over 28%, are above the average ages for the various grades, while 3199, or over 30%, have been more than one term in a grade. (A 'term' here means, for Jr. 1, Jr. 3, Sr. 3, Jr. 4, Sr. 4, one year; for Sr. 1, Jr. 2, Sr. 2, six months.)

"Of the 3199 repeaters, 852 have spent from 3 to 8 terms in a grade.

"This is a most serious condition and measures should be taken at once towards its amelioration.

**"After a careful observation of school activities in this district, I am led to conclude that among the more immediate and potent causes of this retardation are, the overcrowded condition of our primary classes; the inelasticity of our school programme of study; the system of promotion; and the carelessness of parents.**

### OVERCROWDED PRIMARY CLASSES.

"While the average number of pupils per teacher in the Kindergarten, where the work takes the form of play, is but 30, our primary classes have shown an average per teacher of 52. This number is altogether too large, in view of the fact that here the important subjects of Reading, Writing and formal number work are begun. When one considers the standard of proficiency in the elementary subjects demanded of these mere infants before they are promoted to the next grade, and the fact that much individual work is necessary on the part of the teacher, he will understand the hopelessness of securing regularly the promotion of nearly a whole class each term. **About 50% remain in the class another term, in many cases to mark time for some months. Here is where the retardation begins, and discouragement which, later, to some, brings delinquency, and to all, insufficient education.**

"A material reduction in the maximum number of pupils allotted to a primary teacher will alleviate this condition.

### THE SCHOOL PROGRAMME.

"A good school programme should contain such subjects of instruction and should provide for such activities as appeal to the varied interests of the children of different ages and different inclinations. Children are not all born alike. They are not equal either mentally or physically. Some show a strong tendency towards mathematics, while they are correspondingly weak in spelling or art. Others to whom mathematics is an impossibility, show a marked ability in literary and artistic work. **To require for all pupils the irreducible minimum standard of efficiency in all the branches taught in a grade is, to my mind, as cruel as it is unpedagogical.**

"The time spent listlessly in the colour work of the grades by some pupils who have no inclination whatever for it, and never will have, would be much better spent in attending to some other subject, or activity, having a more direct bearing upon their lives. This is no condemnation of Art as a subject of the programme, but rather of the practice of instilling within a boy a dislike of school work generally, by forcing him to undertake a form of work for which he is unfitted.

### SYSTEM OF PROMOTIONS.

"Our system in Toronto provides for two promotions annually in Forms I. and II., and for one promotion annually in Forms III., IV. and V. This, on the whole, is probably the best for our urban graded schools; yet, except in very isolated cases, no provision is made for the promotion of a pupil from one grade to another when he is fit to undertake the work. Some pupils develop much faster than others of the same class, and should not be required to mark time for weeks, or in some cases, months, till the regular promotion time arrives. Such halting is sure to breed discontent in bright pupils, and in not a few cases, to supply favorable conditions for the formation of habits that finally make for their undoing.

> "Again, the regular promotion examinations demand a uniform standard of efficiency in all subjects. As a result many pupils are detained term after term in a grade. They may have been efficient in all subjects except Arithmetic or Spelling. In one or other of these, they have failed to measure up to the standard required for promotion. It is safe to state that many of them never will. But this is no reason why they should be forced to mark time in subjects for which they have a marked ability.
>
> BACKWARD CLASSES.
>
> The treatment of backward children is a subject that forces itself upon the attention of all who have to do with large schools. Scarcely a room can be found in which there are not from one to three pupils who cannot keep the average pace of the pupils of the class. They require an amount of individual attention which it is impossible for the teacher of the graded class to give them. In all our large schools a special class should be formed of such pupils. This class should be relatively small, and its pupils should remain only so long as is necessary for them to develop sufficient power to proceed with the work of the grades from which they were taken."

It will be noticed that Mr. Elliott assigns unequal time value to the various grades. This coincides with the judgment of other inspectors and of many principals. There is a great variation in technical detail, however, and it is evident that Toronto has no yardstick for measuring retardation. The attempt to measure it at present is almost as unsatisfactory as would be the attempt to measure a room with an elastic foot rule on which some inches were twice as long as others.

Mr. Rogers, in his report, treated very fully with these problems and over-age. It is to be noted that he places the proper length of the elementary school course for the average child at six years. Below are some paragraphs from his report:

> "During the last two years my attention has been drawn particularly to the large number of children in certain localities who seemed to be older than the children of the same grades in other districts. This led to enquiry along the line of the differences in ages in the same classes and the various causes therefor.
>
> "The standard ages for the various grades of our schools may be taken from two separate and distinct conditions which give practically the same result. They are found from the average age of those who take the Entrance Examination, or the examination for Entrance to High Schools, which is found to be very close to 14 years. Taking this age as a standard for graduation from the Public Schools, and the time required by an average child to complete the work of the several grades, it will be found that the age to begin in
>
> Sr. 4 Book Class is 13 years.
> Jr. 4 Book Class is 12 years.
> Sr. 3 Book Class is 11 years.
> Jr. 3 Book Class is 10 years.
> Sr. 2 Book Class is 9½ years.
> Jr. 2 Book Class is 9 years.
> Sr. 1 Book Class is 8½ years.
> Jr. 1 Book Class is 8 years.
>
> "In reference to the ages of Jr. 1 and Sr. 1 Book Class children, I am taking into account those who enter school much later than the average city child.

"Take also the compulsory ages for attending school, which are 8 to 14 years. These ages will also give you the same standard ages for the several grades.

"Now, taking the number of children in the classes who are from 1 to 3 years behind the standard ages, the percentage varies from 20 to over 50% of backward pupils, as shown in the table below:

| SCHOOL | Registered No. | No. Pupils 1 or more yrs. backw'd | % of Backward Pupils | No. of Mental Defectives | % of Mental Defectives | Entrance Examination | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | No. who wrote | No. who passed | Average Age | |
| | | | | | | | | Years | Months |
| Annette | 969 | 382 | 39.42 | 16 | 1.65 | 50 | 43 | 14 | 9 |
| Brock | 578 | 211 | 36.50 | 2 | .34 | 32 | 29 | 14 | 5 |
| Carlton | 614 | 193 | 31.43 | 3 | .48 | 9 | 6 | 13 | 11 |
| Earlscourt | 821 | 391 | 47.62 | 5 | .60 | 18 | 14 | 14 | 4 |
| Fern | 1,012 | 407 | 40.21 | 5 | .49 | 40 | 39 | 14 | 7 |
| Howard | 827 | 328 | 39.54 | 1 | .12 | 50 | 41 | 14 | 4 |
| Hughes | 421 | 184 | 43.70 | 4 | .95 | 3 | 2 | 13 | 6 |
| Parkdale | 512 | 262 | 51.16 | .. | .... | 19 | 18 | 14 | 9 |
| Perth | 1,110 | 459 | 41.35 | 16 | 1.44 | 27 | 20 | 14 | 3 |
| Queen Victoria | 814 | 373 | 45.82 | 6 | .73 | 67 | 47 | 14 | 4 |
| Shirley | 353 | 211 | 59.77 | 1 | .28 | .. | .. | .. | .. |
| Strathcona | 618 | 146 | 23.62 | 11 | .... | 18 | 13 | 13 | 11 |
| St. Clair | 211 | 70 | 33.17 | 4 | 1.89 | 3 | 1 | 14 | 2 |
| Western | 613 | 274 | 44.69 | 10 | 1.63 | 26 | 16 | 14 | 6 |
| TOTALS | 9,473 | 3,891 | 41.07 | 84 | .88 | | | | |

"These are backward from several causes. They are not all, no they to any very considerable number, mentally defective children. are backward through long and serious illness. Some through maladies to scarlet fever or other diseases, and some are foreign. But even these totalled do not explain the large number of 'repeaters.' The cause must be sought elsewhere.

"Consider the fact that the large majority enter school at 5 or 6 years of age and remain about a year in the kindergarten. Consider also that from the time they enter Kindergarten at 5 years till they enter Senior First Book Class at 8½ years, they have been 3½ years in school. Is the progress commensurate with the time consumed? Have children been given a love for school work? Are the difficulties of the Second and Third Classes to be charged to the First Book and Kindergarten grades? Are we expecting too much from the younger children? Is it in the interests of Education to keep children at desk work in the class room as long between 5 and 8 years as in the higher grades? It would seem questionable to continue practices which show so little for the time involved.

"One thing seems to be evident that a great waste exists between the entering of children at the age of 5 years in Kindergarten and the entering of the Senior First Book at 8½ years.

Mr. G. H. Armstrong made the following direct references to educational waste:

"So crowded is the modern curriculum that it has become something of a burden to teachers and children alike. Is there dead wood awaiting

**the hand of the pruner? Does every subject of the class room of to-day tend to evolve and enrich the life of the child? Apparently no subject can very well be spared, but we must learn to eliminate, to give the major part of our time and energies to the essential subjects, and more especially to the essential principles of all subjects, dwelling only on those lines of each subject which bear upon the immediate human interests of the child. Herein lies a pressing educational reform.**

"The retardation of pupils in the grades is a very present problem. Irregular attendance, overcrowding of the class-room, under-feeding, improper feeding, and the passive attention of city children to formal studies, owing to the many passing, dissipating interests of artificial life, are evident causes of a condition more and more calling for redress. But there is a common cause often overlooked, the tendency of most teachers to concentrate attention upon the bright children of the class, adapting the lessons to contribute to the progress of those who readily reflect credit, and ignoring largely the slow and unkindled children. This procedure should be reversed, the teacher should concentrate on the fringe of the class, those who are behind, and who see not the way, ignoring to a large extent the clever and normal, who will find the way almost alone. Herein lies a better solution of this problem than is to be found in ungraded classes. To this end the teacher of a junior grade especially should use wisely the half-hour period from 3.30 to 4.00 p.m. for individual work with backward children; more, the hour from 11 to 12 a.m. should be given to the children who are behind, the bright ones being sent off home or to the playgrounds.

"This table gives the number of pupils of 14 years of age who withdrew from the Public Schools during 1913, without finishing the Public School course, and the grade they were in at the time of withdrawal.

| SCHOOL | Jr. 1 | Sr. 1 | Jr. 2 | Sr. 2 | Jr. 3 | Sr. 3 | Jr. 4 | Sr. 4 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Allan | 2 | . | 2 | .. | .. | 3 | ... | 1 | 8 |
| Bedford Park | . | . | .. | .. | 1 | 1 | ... | 1 | 3 |
| Church Street | . | . | .. | .. | .. | 2 | ... | .. | 2 |
| Cottingham Street | . | . | .. | .. | 1 | 2 | 11 | .. | 14 |
| Davisville | . | 1 | .. | 2 | .. | 4 | 4 | 4 | 15 |
| Deer Park | . | . | .. | .. | .. | .. | ... | 3 | 3 |
| Dufferin | . | . | .. | .. | 3 | 1 | 13 | 15 | 32 |
| Duke Street | . | . | .. | 3 | 8 | 6 | ... | .. | 17 |
| Eglington | . | . | .. | 1 | .. | 1 | 4 | 1 | 7 |
| George Street | 2 | . | 2 | .. | 2 | .. | 6 | .. | 12 |
| Hester Howe | 1 | . | 2 | 5 | .. | .. | ... | .. | 8 |
| Hospital | . | . | .. | .. | .. | .. | ... | .. | ... |
| Island | . | . | .. | .. | .. | .. | ... | .. | ... |
| Jesse Ketchum | . | . | 1 | .. | 6 | 9 | 14 | 31 | 61 |
| John Fisher | . | . | .. | .. | 2 | .. | ... | .. | 2 |
| Lee | . | . | .. | .. | .. | .. | ... | .. | ... |
| Park | . | . | .. | 3 | 8 | 15 | 13 | 15 | 54 |
| Rose Avenue | . | . | .. | 2 | 5 | 1 | 5 | 10 | 23 |
| Rosedale | . | . | .. | .. | .. | .. | ... | .. | ... |
| Sackville Street | . | . | 1 | 10 | 5 | 9 | 17 | .. | 42 |
| Victoria Street | . | . | 6 | 1 | 4 | 2 | 25 | .. | 38 |
| Wellesley | . | . | .. | .. | 5 | 7 | 1 | 3 | 16 |
| Winchester Street | . | . | .. | .. | 1 | 10 | 4 | 2 | 17 |
| York Street | 3 | . | .. | .. | 2 | 6 | ... | .. | 11 |
| TOTAL | 8 | 1 | 14 | 27 | 53 | 79 | 117 | 86 | 385 |

Except for the routine statement of the number of children registered in the different schools and information buried in the statistical summary there was nothing in the 1914 report relating directly to the school waste. In fact, reports from the district inspectors were not included. Their inclusion in 1913 was an innovation, perhaps, without realization of the importance of the step. Since 1916 reports or parts of reports of the district inspectors have been included in the official reports. There could be no better guarantee of progress and no better antidote for crystallization than the inclusion in the annual report of the complete, independent, properly written and clear reports of the various supervisory officers to the Board, preferably through the Chief Inspector.

---

## EDUCATIONAL WASTE FROM AN OUTSIDE POINT OF VIEW.

Early in 1914 the Bureau of Municipal Research had brought to the attention of the authorities the desirability of individual continuous record cards for the children, as a basis both for the measurement of educational waste and for a programme designed to reduce such waste to a minimum. The school report of 1913—not issued until late in 1914—was, therefore, welcomed as evidence of a progressive policy soon to be adopted by the educational authorities, and as an opportunity to secure the dynamic of public opinion to support such policy and expedite its rapid adoption in practice. The Bureau, therefore, issued between May 28th, 1915, and February 28th, 1918, a series of fifteen pamphlets, dealing largely, and in considerable detail, with the various aspects of educational waste. Below is a list of these publications:

| | | |
|---|---|---|
| 1. | **Are All Children Alike?** | |
| 2. | **Some Facts About Our Schools in 1913** | **School Story No. 1** |
| 3. | **Some Facts About Our Schools in 1914** | **School Story No. 2** |
| 4. | **The Cost of Public Education** | **School Story No. 3** |
| 5. | **Two Departments of Health (1)** | **School Story No. 4** |
| 6. | **Cost of Secondary Education** | **School Story No. 5** |
| 7. | **Retardation and Overage** | **School Story No. 6** |
| 8. | **The Feeble-Minded.** | |
| 9. | **Technical Education in Toronto** | **School Story No. 7** |
| 10. | **The School Report of 1915** | **School Story No. 8** |
| 11. | **Two Departments of Health (2).** | |
| 12. | **Health Conditions in Our Schools** | **School Story No. 9** |
| 13. | **Individual Education** | **School Story No. 10** |
| 14. | **What Happens to Our Boys and Girls is More Important Than What Happens to Our Dollars** | **School Story No. 11** |
| 15. | **Preparation of Citizens for Living.** | |

The questions raised and suggestions made in these pamphlets are still of such immediate importance that we quote below a few questions and statements from their pages:

## *INDUSTRIAL WASTE VS. HUMAN WASTE.*

**May 28th, 1915.**

Does Ford know how much material is wasted in his factory?

Does he know why?

Does he try to reduce waste to the vanishing point?

Do you know how much child-life waste there is in your city?

Do you know why?

Do you know what the waste costs your city in sorrow, pain, poverty, disease and dollars?

## *HAVE CITIZENS ANY DUTY TO THE SCHOOLS, OTHER THAN PAYING TAXES?*

**May 29th, 1915.**

What are the Citizens of Toronto going to do about the problem of the City's feeble-minded and normal backward children?

**May 28th, 1915.**

Have you heard of the Toronto Commission for the conservation of child-life and efficiency? There are about 200,000 members, but the great majority of the members don't know it. Are you a member in good standing?

**November 25th, 1915.**

Public education is Toronto's most important community undertaking. The money necessary for its support is given most ungrudgingly.

Everyone may have at least one small share in making our schools even more serviceable to our children than they are at present.

One way each of us can help the Board of Education to get 100% of community service for its expenditure is to study the difficulties which face it.

**December 14th, 1915.**

OUR Board of Education is elected and OUR school officials are appointed to administer OUR schools.

They are, of course, elected and appointed to think for us.

They are not elected or appointed to do OUR thinking for us.

We, as taxpayers, are not appointed simply to pay the bills. We are appointed to know how, why and to what purpose the money we work for and earn is spent.

## *GOOD ACCOUNTING AND REPORTING NECESSARY AIDS IN SECURING THE BEST EDUCATIONAL RESULTS.*

**January 24th, 1916.**

Is it not true that inaccurate and ill-digested facts with regard to school finances and school processes must inevitably lead to inefficient and ill-adapted methods of educating, classifying and promoting Toronto's children, and that the habit of mind which produces the one will tolerate the other?

Should the accounts of a school system automatically produce the facts as to per pupil costs, or should these be left to school principals who have had nothing to do with the school accounts and naturally cannot be in touch with all the accounting facts?

Should the accounts produce the facts for all grades of schools on the same principle, or should each type of school be allowed to determine its own method and produce its own facts?

Should a school system which spends annually on current account over $3,000,000 have the most up-to-date system of accounting and a method of reporting which will make it safe to use the facts it reports in one's thinking, or is Toronto so well off and so sure of its children's careers that it can afford to take a sporting chance?

## *WASTE IS NATURAL BUT MAY BE COMBATTED.*

**February 10th, 1916.**

Waste goes on everywhere. It is natural. But it can be checked. There is waste in education. It is natural and universal. But it can be minimized.

Waste in human resources is the most serious waste there is. It is the most worth while stopping.

### BUT HOW?

Find how much waste there is—where it is—why it is. On this information decide how much may be avoided and where and how to tackle it.

Tackle it!

**February 10th, 1916.**

Toronto cannot accurately measure the amount of retardation or late entrance in the total without continuous individual records for each child going back at least eight or nine years. Toronto could measure accurately the amount of retardation for last year from such records going back one year. FAILING THESE, TORONTO STILL COULD MEASURE ACCURATELY, BY THE USE OF EXISTING RECORDS, THE PRODUCT OF RETARDATION AND LATE ENTRANCE, VIZ., OVER-AGE, FOR EVERY CLASS, GRADE, SCHOOL AND DISTRICT IN THE CITY.

It is worth while doing—not to measure or assign praise or blame, but to locate the problem and measure its size. The fact that many over-age children come from Europe and from outside Ontario communities only adds to the problem. We have to face it, even if we are not responsible for it. We are responsible if we do not attempt to deal with it. We can deal with it effectively, as is shown conclusively on pages 28 and 29 of the 1913 Report of the Toronto Board of Education.

Great strides have been made during the past year in several Toronto schools and districts in combatting over-age and retardation. Would not the movement be stimulated by a city-wide stock-taking and inquiry as to causes, and would not parents and public school supporters be encouraged as to the future if they were taken more into the confidence of the Board?

More detailed and significant facts with regard to retardation and over-age, acceleration and under-age, upon which to base a merciless warfare against the greatest national waste, could be obtained in one month than most cities have gathered in ten years. Why lag behind? Why not be in the van?

## *NOT "MISFIT" BUT "MISFITTED" CHILDREN.*

**February 10th, 1916.**

Who was guilty of originating the term "misfit child"?

When the suit you are wearing feels and looks uncomfortable, are you the misfit or is the suit? Do you consult a surgeon or a tailor?

When children by wholesale and their school environment do not agree, which is the "misfit," the child or his schooling?

There are misfit homes,
misfit school buildings,
misfit courses of study,
misfit systems of promotion,
misfit boards of education,
but no "misfit" only "misfitted" children.

"A place for every child and every child in his place." This will ensure the natural rate of progress for every child, consistent with his health and ability.

It depends largely on the processes and products of our schools—

How healthy,
How wealthy,
How wise,
How efficient,
How socially minded,
How happy

our Canadian people are to be in the years of opportunity which are to follow the war.

**February 10th, 1916.**

Shall we know or guess?

Setting a standard of average attainment does not mean that all children should be treated alike. That has been the tendency too long. In addition to calling attention to individual needs, it is of value in setting up a yardstick by which one year's progress can be compared with another, one district with another similar district, one school with another similar school. Each community may have its own standard for self-measurement and self-comparison so all can see how quickly "what is" approaches "what might be."

## *THE BEST RESULTS IN EDUCATION OBTAINED BY CO-OPERATION OF ALL ELEMENTS IN OUR NATIONAL LIFE.*

**March 10th, 1916.**

What are our industrial resources?
What do they need for full development?
What are our commercial resources?
What do they need for full development?
What are our human resources?
What do they need for full development?
How can we best bring together our industrial, commercial and human resources so as to produce the maximum result?
Can we decide that in our armchairs, or must we base our decisions on the facts?
What we need is educational as well as industrial and commercial engineering.

## *PUBLIC EDUCATION THE MOST VITAL FUNCTION OF GOVERNMENT.*

**February 19th, 1917.**

The salvation of Canada in the period of reconstruction which must follow the war will depend mainly on how our publicly-supported schools of all types handle the human material committed to their charge. The day of the irresponsible, heaven-sent expert is past. The day of co-operation between informed citizens and trained and experienced specialists in charge of public departments is at hand. Your co-operation is needed in public education, at least to the extent of studying and forming judgments regarding its methods and needs.

**February 23rd, 1917.**

What happens to our boys and girls is more important than what happens to our dollars.

If it were not for our boys and girls our dollars would be of little use or value.

**February 23rd, 1917.**

Public Education, the most vital function of government, and, therefore, the most worthy of study by citizens.

What schooling to give their children is one of the hardest problems which parents have to face. How parents can take an effective interest in their children's school progress, without hurting the children or inter-

**fering with school processes, is another difficult question which the formation of Home and School Leagues and similar agencies for the co-operation of parents, teachers and children and Boards of Education, is doing much to answer. The first test of real desire to help the schools to help the children is willingness to invest time and thought in understanding the needs and difficulties of both. Understanding of these is not simple and easy. No statement of these can be so clear as to make thought unnecessary.**

## OVER-AGE.

What is meant by the term?

The presence in all grades of large numbers of children much bigger and older than the average has attracted the attention of educators for many years. The condition has grown with the growth of cities and the consequent growth of large graded school systems. As school systems became larger, ease of administration demanded promotion by classes, and, as a natural result, the best interests of the individual frequently suffered in conflict with the best interests of a smoothly-working school machine, which took so many children in each year, dropped so many at various stages of manufacture as partially defective or damaged products and discharged so many less at the exit in various stages of efficiency, or inefficiency, to struggle with an environment more or less strange to them.

At the same time foreigners were pouring in from Europe and their children still further complicated the situation, bringing another sort of raw material to the machine. The machine, being built for a uniform product and not being self-adaptable, naturally and automatically cast off as far as possible all material not yielding readily to its processes, but was as naturally slowed up in its operations by the presence of this human sand. It is true that many men and women charged with running the machine did their best to mitigate its severity in particular instances, but such attempts often resulted only in holding up the progress of the machine as a whole.

A child is over-age when he is older than the average age of the children in his grade, **or older than the age that an average normal child in that grade should be [illegible] good conditions.** The second definition is preferable, as it is possible that the average age of the children in a particular grade may be higher than it ought to be. The average is a reflex of actual conditions, not necessarily of desirable or possible conditions

Over-age is brought about by two conditions:

1. Late entrance into school.
2. Abnormally slow progress through school, usually called "retardation."

Before either of these can be measured standards of normal age and progress must be set up. At present such general standards simply do not exist. Some regard the system as an eight-year system; some as a seven-year system; some as a six-and-a-half year system; and some as a six-year system. Now, it is true that absolute retardation and absolute over-age can be determined only for each individual, as each individual has a normal rate of progress which may vary with various epochs in his life. That is no reason, however, why for purposes of effective administration, for the sake of measuring mass results and of focusing attention on particular cases we should not attempt to set up relative standards of over-age and retardation.

The records of the Toronto schools, as well as various studies of American schools, go to show that 5 years is too young for school entrance in most cases, and 8 years too old, although there are many individual exceptions. It is true that the child beginning school at 8, on the average, may complete the course in less time than a child entering at 6, but he would only gain one year in the course, which still would leave him one year older at graduation than the child entering at 6. Again, although entering two years younger, a child beginning school at 4 takes almost two years longer than a child entering at 6, and would graduate at an age only slightly less than that of the child entering at 6. It is evident that early entrance is not justified by the small relative advantage at graduation, and that the late entrance is not entirely justified by the rapid progress which accompanies it. It is very probable that, on the whole, the best age of entrance into the primary class is 6 plus, and into the kindergarten 5 plus. Below is a table bearing on this topic, published in the 1918 school report:

### Average Time Taken By All Pupils Between Kindergarten or Primary Class and Entrance Examination According to Ages:

Those entering at 4 years of age took 9 years and 5 months.
Those entering at 5 years of age took 8 years and 7 months.
Those entering at 6 years of age took 7 years and 9 months.
Those entering at 7 years of age took 7 years and 2 months.
Those entering at 8 years of age took 6 years and 9 months.

There seem to be four chief schools of thought—as evidenced by the official reports of inspectors, and schedules filled out by 26 Principals for the Bureau—as to the length of the elementary school course, viz.:

Those who believe it to be an 8-year course.
Those who believe it to be a 7-year course.
Those who believe it to be a 6½-year course.
Those who believe it to be a 6-year course.

An analysis of schedules published by the Board would seem to indicate that but for the slowing up of the whole system by inadequate provision for backward children, and but for the haziness with regard to the real length of the course, 6½ years even under present conditions is not only theoretically, but actually possible of attainment. Granting six years plus as the standard age of entrance and 6½ years as the standard length of course, the following table would supply the standards for measuring slow and rapid progress, overage and underage.

| GRADE | Standard age for beginning Grade | Standard time to complete Grade | Standard age at completion of Grade |
|---|---|---|---|
| Junior I. | 6 plus | 1 year | 7 |
| Senior I. | 7 " | ½ " | 7½ |
| Junior II. | 7½ " | ½ " | 8 |
| Senior II. | 8 " | ½ " | 8½ |
| Junior III. | 8½ " | 1 " | 9½ |
| Senior III. | 9½ | 1 " | 10½ |
| Junior IV. | 10½ | 1 " | 11½ |
| Senior IV. | 11½ | 1 " | 12½ |

The 1917 and 1918 reports each contain a table which sets forth for each grade the number of pupils completing each grade in less than one-half year, one year, 1½ years and so on up to 2½ years and over. This shows conclusively that the most usual time for completing each grade in actual practice is one year. A remarkable feature of these tables is, however, that over a third of the children in each case completed the Senior I., the Junior II. and the Senior II. in one half a year or less. This would indicate that for over one-third of the children the elementary school course is not over 6½ years in length. In fact, the grade-progress tables can hardly be explained except by the existence of several standards in various parts of the city or fluctuating standards in the city as a whole. So striking are these tables that they are reproduced here, reduced to the percentage basis:

JUNE, 1917

| YEARS | Kindergarten | I. | | II. | | III. | | IV. | | Percentage of Total | Per centage without Kindergarten |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jr. | Sr. | Jr. | Sr. | Jr. | Sr. | Jr. | Sr. | | |
| Under ½ | 12.3 | 1.3 | 2.0 | 1.3 | 0.4 | 1.7 | 1.5 | 0.6 | 0.1 | 2.46 | 1.2 |
| ½ | 20.7 | 11.9 | 39.8 | 39.1 | 36.3 | 20.7 | 17.9 | 13.8 | 9.1 | 24.58 | 25.1 |
| 1 | 55.7 | 64.4 | 50.1 | 52.4 | 57.3 | 63.2 | 71.7 | 76.7 | 76.6 | 61.62 | 62.4 |
| 1½ | 8.4 | 12.1 | 6.2 | 5. | 4.1 | 8. | 3.5 | 3.2 | 2. | 6.28 | 6. |
| 2 | 2.9 | 8.9 | 1.8 | 2. | 1.8 | 6.2 | 5.3 | 5.7 | 12.1 | 4.78 | 5. |
| 2½ & over | .... | 1.4 | .1 | .2 | .1 | .2 | .1 | .... | .1 | .28 | .3 |
| TOTALS.. | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

JUNE, 1918

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Under ½ | 10.3 | 0.6 | 1.3 | 0.9 | 0.6 | 1.2 | 0.7 | 0.6 | 0.2 | 1.9 | 0.8 |
| ½ | 19.2 | 9.7 | 38.7 | 36.7 | 32.9 | 13.4 | 10.9 | 9. | 10.2 | 21.2 | 21.5 |
| 1 | 57. | 66. | 52.5 | 53.5 | 57.4 | 67.2 | 76.7 | 79.4 | 72.2 | 63.4 | 64.2 |
| 1½ | 9.9 | 13.3 | 5.2 | 7.2 | 5.7 | 10.8 | 4.3 | 3.2 | 2.2 | 7.4 | 7.1 |
| 2 | 3.5 | 9. | 2.1 | 1.7 | 3.4 | 6.9 | 7.4 | 7.8 | 15. | 5.8 | 6.1 |
| 2½ & over | .1 | 1.4 | 0.2 | .... | .... | 0.5 | .... | .... | 0.2 | 0.3 | 0.3 |
| TOTALS.. | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Do not these results indicate either that during the second, third and fourth grades of the course the pupils vary more widely in ability than in other grades, or that there is a difference of opinion among principals as to the length of these grades, their opinions being reflected in the work actually done by teachers and pupils? Is it not the most likely conclusion that when the Senior 1st, Junior 2nd and Senior 2nd are looked upon as half-year grades they are more apt to get half-year results, and where the taking of one year to finish the work of these grades is looked upon as satisfactory, one-year results are obtained? Is it possible that a larger number of pupils in the upper grades would complete a grade's work in one-half year or less if there were two promotions a year as in the younger grades mentioned?

As a matter of fact, more children entered the Junior 1st at six years of age in September, 1918, than at any other age, and more entered the Senior 4th at 13 years of age than at any other age. This makes the course in practice for the majority of children an eight-year course, and except for certain abnormalities the figures indicate one year as the most typical time for a grade in actual practice.

Accepting eight years as the standard length of the public school course (although 6½ years is the length for probably one-third of the pupils), the standard time for beginning, completing the work of, and leaving each grade would be as follows:

| | Age at beginning | Time in years in grade | Age at leaving grade |
|---|---|---|---|
| Junior 1st...... | 6 | 1 | 7 |
| Senior 1st...... | 7 | 1 | 8 |
| Junior 2nd...... | 8 | 1 | 9 |
| Senior 2nd...... | 9 | 1 | 10 |
| Junior 3rd...... | 10 | 1 | 11 |
| Senior 3rd...... | 11 | 1 | 12 |
| Junior 4th...... | 12 | 1 | 13 |
| Senior 4th...... | 13 | 1 | 14 |

It was hoped that it would have been possible to give measurements of over-age according to the standard given on page 21, but as the official figures are not by half-year periods and as the Bureau obtained returns from only 26 schools on the half-year period basis, this will be impossible. The tables which follow, prepared from the official reports, are marked according to the standard given on this page.

## TABULATED STATEMENT SHOWING ROLL OF PUPILS ARRANGED ACCORDING TO AGES AND FORMS (AFTER PROMOTION)

### SEPTEMBER, 1916

| GRADE | 4 yrs | 5 yrs | 6 yrs | 7 yrs | 8 yrs | 9 yrs | 10 yrs | 11 yrs | 12 yrs | 13 yrs | 14 yrs | 15 yrs | 16 yrs | 17 yrs | 18 yrs | 19 yrs | 20 yrs | Total | No. under age | No. normal age | No. over age | % under age | % normal age | % over age |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kinderg'n | 239 | 4,101 | 2,360 | 125 | 8 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 6,833 | 239 | 4,101 | 2,493 | 3.50 | 60.02 | 36.48 |
| Junior I | 2 | 302 | 4,064 | 4,503 | 1,642 | 365 | 80 | 20 | 13 | 4 | 2 | 1 | ... | ... | ... | ... | ... | 10,998 | 304 | 4,064 | 6,630 | 2.77 | 36.95 | 60.28 |
| Senior I | ... | 1 | 129 | 1,969 | 3,012 | 1,402 | 428 | 132 | 49 | 11 | 3 | ... | ... | ... | ... | ... | ... | 7,136 | 130 | 1,969 | 5,037 | 1.82 | 27.59 | 70.59 |
| Junior II | ... | ... | 3 | 301 | 1,975 | 2,343 | 1,328 | 509 | 241 | 80 | 17 | ... | ... | ... | 1 | ... | ... | 6,798 | 304 | 1,975 | 4,519 | 4.47 | 29.05 | 66.48 |
| Senior II | ... | ... | ... | 44 | 658 | 1,855 | 1,865 | 1,156 | 534 | 193 | 40 | 1 | ... | ... | ... | ... | ... | 6,346 | 702 | 1,855 | 3,789 | 11.06 | 29.24 | 59.70 |
| Junior III | ... | ... | ... | 3 | 90 | 796 | 1,822 | 1,844 | 1,368 | 683 | 123 | 19 | 6 | ... | ... | ... | ... | 6,754 | 889 | 1,822 | 4,043 | 13.16 | 26.98 | 59.86 |
| Senior III | ... | ... | ... | ... | 2 | 123 | 680 | 1,518 | 1,678 | 1,149 | 265 | 50 | 9 | ... | ... | ... | ... | 5,474 | 805 | 1,518 | 3,151 | 14.70 | 27.74 | 57.56 |
| Junior IV | ... | ... | ... | ... | ... | 13 | 190 | 837 | 1,418 | 1,352 | 509 | 141 | 16 | 2 | ... | ... | ... | 4,478 | 1,040 | 1,418 | 2,020 | 23.22 | 31.67 | 45.11 |
| Senior IV | ... | ... | ... | ... | ... | ... | 17 | 208 | 713 | 1,253 | 882 | 327 | 52 | 6 | 1 | ... | 1 | 3,460 | 938 | 1,253 | 1,269 | 27.11 | 36.21 | 36.08 |
| TOTAL | 241 | 4,404 | 6,556 | 6,945 | 7,387 | 6,897 | 6,410 | 6,224 | 6,014 | 4,725 | 1,841 | 539 | 83 | 8 | 2 | ... | 1 | 58,277 | 5,351 | 19975 | 32951 | 9.18 | 34.28 | 56.54 |
| Underage | 241 | 303 | 132 | 348 | 750 | 932 | 887 | 1,045 | 713 | ... | ... | ... | ... | ... | ... | ... | ... |  | 5,351 |  |  |  |  |  |
| Normal age | ... | 4,101 | 4,064 | 1,969 | 1,975 | 1,855 | 1,822 | 1,518 | 1,418 | 1,253 | ... | ... | ... | ... | ... | ... | ... |  |  | 19975 |  |  |  |  |
| Overage | ... | ... | 2,360 | 4,628 | 4,662 | 4,110 | 3,701 | 3,661 | 3,883 | 3,472 | 1,841 | 539 | 83 | 8 | 2 | ... | 1 |  |  |  | 32951 |  |  |  |
| % Underage | 100 | 6.88 | 2.01 | 5.01 | 10.15 | 13.51 | 13.84 | 16.79 | 11.85 | ... | ... | ... | ... | ... | ... | ... | ... |  |  |  |  | 9.18 |  |  |
| % Normal | ... | 93.12 | 61.99 | 28.35 | 26.74 | 26.90 | 28.42 | 24.39 | 23.58 | 26.52 | ... | ... | ... | ... | ... | ... | ... |  |  |  |  |  | 34.28 |  |
| % Overage | ... | ... | 36. | 66.64 | 63.11 | 59.59 | 57.74 | 58.82 | 64.57 | 73.48 | 100 | 100 | 100 | 100 | 100 | ... | 100 |  |  |  |  |  |  | 56.54 |

## TABLE K — SHOWING ROLL OF PUPILS ARRANGED ACCORDING TO AGES AND GRADES AFTER MIDSUMMER PROMOTIONS AND REORGANIZATIONS IN SEPTEMBER, 1917

| GRADE | 4 yrs | 5 yrs | 6 yrs | 7 yrs | 8 yrs | 9 yrs | 10 yrs | 11 yrs | 12 yrs | 13 yrs | 14 yrs | 15 yrs | 16 yrs | 17 yrs | 18 yrs | Total | No. under age | No. normal age | No. overage | % under age | % normal age | % overage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kindergarten | 29 | 4,713 | 1,995 | 72 | 7 | 1 | ... | 1 | ... | ... | ... | ... | ... | ... | ... | 6,818 | 29 | 4,713 | 2,076 | 0.43 | 69.13 | 30.44 |
| Junior I | ... | 200 | 4,449 | 4,679 | 1,470 | 368 | 79 | 33 | 11 | 6 | ... | 3 | ... | ... | ... | 11,298 | 200 | 4,449 | 6,649 | 1.77 | 39.38 | 58.85 |
| Senior I | ... | ... | 190 | 2,308 | 2,942 | 1,346 | 447 | 125 | 37 | 10 | 4 | ... | ... | ... | ... | 7,409 | 190 | 2,308 | 4,911 | 2.57 | 31.15 | 66.28 |
| Junior II | ... | ... | 15 | 494 | 2,177 | 2,270 | 1,177 | 452 | 181 | 70 | 6 | 2 | ... | ... | ... | 6,844 | 509 | 2,177 | 4,158 | 7.44 | 31.80 | 60.76 |
| Senior II | ... | ... | ... | 46 | 826 | 2,183 | 2,011 | 1,073 | 495 | 192 | 26 | 4 | 1 | ... | ... | 6,857 | 872 | 2,183 | 3,802 | 12.72 | 31.83 | 55.45 |
| Junior III | ... | ... | ... | 2 | 154 | 1,132 | 2,089 | 2,030 | 1,372 | 718 | 128 | 16 | ... | 1 | 1 | 7,643 | 1,288 | 2,089 | 4,266 | 16.85 | 27.33 | 55.82 |
| Senior III | ... | ... | ... | ... | 10 | 177 | 889 | 1,678 | 1,752 | 1,247 | 290 | 36 | 3 | 1 | ... | 6,083 | 1,076 | 1,678 | 3,329 | 17.68 | 27.58 | 54.72 |
| Junior IV | ... | ... | ... | ... | ... | 7 | 173 | 783 | 1,473 | 1,488 | 532 | 112 | 11 | 1 | ... | 4,580 | 963 | 1,473 | 2,144 | 21.03 | 32.16 | 46.81 |
| Senior IV | ... | ... | ... | ... | ... | ... | 11 | 183 | 795 | 1,349 | 977 | 337 | 51 | 5 | 1 | 3,709 | 989 | 1,349 | 1,371 | 26.66 | 36.37 | 36.37 |
| TOTALS | 29 | 4,913 | 6,649 | 7,601 | 7,586 | 7,484 | 6,876 | 6,358 | 6,116 | 5,080 | 1,963 | 510 | 66 | 8 | 2 | 61,241 | 6,116 | 22,419 | 32,706 | 9.99 | 36.61 | 53.40 |
| Underage | 29 | 200 | 205 | 542 | 990 | 1,316 | 1,073 | 966 | 795 | ... | ... | ... | ... | ... | ... |  | 6,116 |  |  |  |  |  |
| Normal Age | ... | 4,713 | 4,449 | 2,308 | 2,177 | 2,183 | 2,089 | 1,678 | 1,473 | 1,349 | ... | ... | ... | ... | ... |  |  | 22,419 |  |  |  |  |
| Overage | ... | ... | 1,995 | 4,751 | 4,419 | 3,985 | 3,714 | 3,714 | 3,848 | 3,731 | 1,963 | 510 | 66 | 8 | 2 |  |  |  | 32,706 |  |  |  |
| % Underage | 100 | 4.07 | 3.08 | 7.13 | 13.05 | 17.58 | 15.60 | 15.20 | 13. | ... | ... | ... | ... | ... | ... |  |  |  |  | 9.99 |  |  |
| % Normal | ... | 95.93 | 66.91 | 30.36 | 28.70 | 29.17 | 30.38 | 26.39 | 24.08 | 26.56 | ... | ... | ... | ... | ... |  |  |  |  |  | 36.61 |  |
| , Overage | ... | ... | 30.01 | 62.51 | 58.25 | 53.25 | 54.02 | 58.41 | 62.92 | 73.44 | 100 | 100 | 100 | 100 | 100 |  |  |  |  |  |  | 53.40 |

## TABLE K — SHOWING ROLL OF PUPILS ARRANGED ACCORDING TO AGES AND GRADES AFTER MIDSUMMER PROMOTIONS AND REORGANIZATION IN SEPTEMBER, 1918

| GRADE | 4 yrs | 5 yrs | 6 yrs | 7 yrs | 8 yrs | 9 yrs | 10 yrs | 11 yrs | 12 yrs | 13 yrs | 14 yrs | 15 yrs | 16 yrs | 17 yrs | 18 yrs | Total | No. under age | No. normal age | No. over age | % under age | % normal age | % over-age |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kindergarten | 22 | 4,879 | 2,027 | 57 | 3 | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 6,989 | 22 | 4,879 | 2,088 | .31 | 69.81 | 29.88 |
| Junior I | 1 | 255 | 4,745 | 4,640 | 1,328 | 290 | 80 | 22 | 10 | 5 | 5 | 1 | 3 | .... | .... | 11,385 | 256 | 4,745 | 6,384 | 2.25 | 41.68 | 56.07 |
| Senior I | .... | .... | 216 | 2,708 | 3,003 | 1,304 | 420 | 121 | 41 | 15 | 1 | 2 | .... | .... | .... | 7,831 | 216 | 2,708 | 4,907 | 2.76 | 34.58 | 62.66 |
| Junior II | .... | .... | 7 | 455 | 2,302 | 2,242 | 1,234 | 439 | 164 | 68 | 11 | .... | .... | .... | .... | 6,922 | 462 | 2,302 | 4,158 | 6.67 | 33.26 | 60.07 |
| Senior II | .... | .... | .... | 66 | 940 | 2,225 | 1,996 | 1,160 | 506 | 178 | 28 | 3 | .... | .... | .... | 7,102 | 1,006 | 2,225 | 3,871 | 14.16 | 31.33 | 54.51 |
| Junior III | .... | .... | .... | 1 | 145 | 1,291 | 2,464 | 2,213 | 1,348 | 679 | 106 | 10 | 5 | .... | .... | 8,262 | 1,437 | 2,464 | 4,361 | 17.39 | 29.82 | 52.79 |
| Senior III | .... | .... | .... | .... | 9 | 221 | 1,157 | 1,991 | 1,889 | 1,311 | 293 | 54 | 8 | 1 | 1 | 6,935 | 1,387 | 1,991 | 3,557 | 20.00 | 28.71 | 51.29 |
| Junior IV | .... | .... | .... | .... | .... | 16 | 218 | 913 | 1,591 | 1,560 | 647 | 116 | 22 | 1 | .... | 5,084 | 1,147 | 1,591 | 2,346 | 22.56 | 31.29 | 46.15 |
| Senior IV | .... | .... | .... | .... | .... | .... | 19 | 175 | 749 | 1,391 | 914 | 323 | 43 | 5 | 1 | 3,620 | 943 | 1,391 | 1,286 | 26.05 | 38.43 | 35.52 |
| TOTAL | 23 | 5,134 | 6,995 | 7,927 | 7,730 | 7,590 | 7,588 | 7,034 | 6,298 | 5,207 | 2,005 | 509 | 81 | 7 | 2 | 64,130 | 6,876 | 24,296 | 32,958 | 10.72 | 37.89 | 51.39 |
| Underage | 23 | 255 | 223 | 522 | 1,094 | 1,528 | 1,394 | 1,088 | 749 | .... | .... | .... | .... | .... | .... |  | 6,876 |  |  |  |  |  |
| Normal Age | .... | 4,879 | 4,745 | 2,708 | 2,302 | 2,225 | 2,464 | 1,991 | 1,591 | 1,391 | .... | .... | .... | .... | .... |  |  | 24,296 |  |  |  |  |
| Overage | .... | .... | 2,027 | 4,697 | 4,334 | 3,837 | 3,730 | 3,955 | 3,958 | 3,816 | 2,005 | 509 | 81 | 7 | 2 |  |  |  | 32,958 |  |  |  |
| % Underage | 100 | 4.97 | 3.19 | 6.59 | 14.15 | 20.13 | 18.37 | 15.47 | 11.89 | .... | .... | .... | .... | .... | .... |  |  |  |  | 10.72 |  |  |
| % Normal | .... | 95.03 | 67.83 | 34.16 | 29.78 | 29.32 | 32.47 | 28.30 | 25.26 | 26.71 | .... | .... | .... | .... | .... |  |  |  |  |  | 37.89 |  |
| % Overage | .... | .... | 28.98 | 59.25 | 56.07 | 50.55 | 49.16 | 56.23 | 62.85 | 73.29 | 100 | 100 | 100 | 100 | 100 |  |  |  |  |  |  | 51.39 |

## PERCENTAGE OF OVERAGE CHILDREN BY GRADES AS OF SEPTEMBER 1st, 1916—1917—1918

| GRADE | 1916 | 1917 | 1918 |
|---|---|---|---|
| Kindergarten... | 36.48% | 30.44% | 29.88% |
| Junior 1st...... | 60.28 | 58.85 | 56.07 |
| Senior 1st...... | 70.59 | 66.28 | 62.66 |
| Junior 2nd...... | 66.48 | 60.76 | 60.07 |
| Senior 2nd...... | 59.70 | 55.45 | 54.51 |
| Junior 3rd...... | 59.86 | 55.82 | 52.79 |
| Senior 3rd...... | 57.56 | 54.72 | 51.29 |
| Junior 4th...... | 45.11 | 46.18 | 46.15 |
| Senior 4th...... | 36.68 | 36.67 | 35.52 |
| All grades...... | 56.54 | 53.40 | 51.39 |

## PERCENTAGE OF OVERAGE CHILDREN BY YEARS AS OF SEPTEMBER 1st, 1916—1917—1918

| YEARS | 1916 | 1917 | 1918 |
|---|---|---|---|
| 4 | ......% | ......% | ......% |
| 5 | ...... | ...... | ...... |
| 6 | 36. | 30.1 | 28.98 |
| 7 | 66.64 | 62.51 | 59.25 |
| 8 | 63.11 | 58.25 | 56.07 |
| 9 | 59.59 | 53.25 | 50.55 |
| 10 | 57.74 | 54.02 | 49.16 |
| 11 | 58.82 | 58.41 | 56.23 |
| 12 | 64.57 | 62.92 | 62.85 |
| 13 | 73.48 | 73.44 | 73.29 |
| All years over 13 | 100. | 100. | 100. |
| All years....... | 56.54 | 53.40 | 51.39 |

## PERCENTAGE OF UNDERAGE CHILDREN BY GRADES AS OF SEPT. 1st, 1916—SEPT. 1st, 1917—SEPT. 1st, 1918

| GRADE | 1916 | 1917 | 1918 |
|---|---|---|---|
| Kindergarten... | 3.50% | .43% | .31% |
| Junior 1st...... | 2.77 | 1.77 | 2.25 |
| Senior 1st...... | 1.82 | 2.57 | 2.76 |
| Junior 2nd...... | 4.47 | 7.44 | 6.67 |
| Senior 2nd...... | 11.06 | 12.72 | 14.16 |
| Junior 3rd...... | 13.16 | 16.85 | 17.39 |
| Senior 3rd...... | 14.70 | 17.68 | 20.00 |
| Junior 4th...... | 23.22 | 21.03 | 22.56 |
| Senior 4th...... | 27.11 | 26.66 | 26.03 |
| All grades...... | 9.18 | 9.99 | 10.72 |

## PERCENTAGE OF UNDERAGE CHILDREN BY YEARS AS OF SEPTEMBER 1st, 1916—1917—1918

| YEARS | 1916 | 1917 | 1918 |
|---|---|---|---|
| 4 | 100.00% | 100.00% | 100.00% |
| 5 | 6.88 | 4.07 | 4.97 |
| 6 | 2.01 | 3.08 | 3.19 |
| 7 | 5.01 | 7.13 | 6.59 |
| 8 | 10.15 | 13.05 | 14.15 |
| 9 | 13.51 | 17.58 | 20.13 |
| 10 | 13.84 | 15.60 | 18.37 |
| 11 | 16.79 | 15.20 | 15.47 |
| 12 | 11.85 | 13. | 11.59 |
| 13 | ...... | ...... | ...... |
| All over 13...... | ...... | ...... | ...... |
| All years....... | 9.18 | 9.99 | 10.72 |

An examination of these tables shows that in two years:

1. The percentage of overage children was reduced from 56.54 to 51.39.
2. The percentage of overage was reduced in every grade of the Public School Course except one.
3. The percentage of overage was reduced for each age between 5 and 14.
4. The percentage of underage children increased from 9.18 to 10.72.
5. The percentage of underage children increased between the Senior First and the Senior Third, both inclusive, and ages six to ten, both inclusive.

There can be no doubt that a very considerable reduction in the proportion of children older than the standard for their grades and an increase in the proportion of children younger than the standard for their grades has been effected in recent years. Such a result could have been brought about only by a general attack on the problems involved, by increased attention to the individual child, and by unremitting care in the promotion of children. The figures indicate that the results were attained by the schools themselves and not by the admission of a greater proportion of young children.

## RETARDATION AND DROPPING-OUT (ELIMINATION).

Before the general institution of continuous record cards for children in the elementary city schools of this continent, the relative number of children in each grade provided the only means of measuring the results of retardation and elimination. Naturally, retardation occurs in all grades, leading, if no counter tendency intervenes, to a greater total membership than if the amount of rapid promotion actually balanced slow promotion, or if all children were promoted at the normal rate.

As children approach the age of 14, or even 12, the effect of elimination or dropping-out in reducing the membership of the grade, begins to be felt until in the Senior IV. the number of members may be hardly more than half of the number of beginners. The artificial selection which raises the level of ability in the upper grades, stimulates rapid promotion which further tends to reduce the membership of the last years. The processes of retardation and elimination are so interwoven that the effects of each factor upon the enrollment cannot be determined accurately unless continuous record cards for all children in school have been kept for seven or eight years.

These records are a comparatively recent feature of school administration in Toronto, so that in order to obtain an approximate measure of results of retardation and dropping-out in Toronto schools, we must avail ourselves of the Ayres method, modified to meet, as far as possible, Ontario's conditions.

It is assumed that the ratio of the number of beginners to the number of children in the last elementary grade is an index of the efficiency of the school system as far as retardation and elimination is concerned. Further—disregarding deaths—it is assumed that for, say, every thousand beginners in an eight-year course there would be an enrollment of but 8000 children and that any enrollment in excess of this would, it is assumed, represent additional financial burdens. Economic efficiency in this regard is represented by the ratio of the actual enrollment to the theoretically perfect enrollment. The index of efficiency, so called, is regarded as the product of the two ratios explained above. In other words, one index of mechanical and economic efficiency of the schools might be stated thus:

$$\frac{\text{The membership of the last grade on the basis of 1000 beginners.}}{\text{1000 (beginners).}} \text{ BY } \frac{\text{The theoretically perfect enrollment per 1000 beginners.}}{\text{The actual enrollment per 1000 beginners.}}$$

The index is usually given in percentage form.

To estimate the average number of beginners it has been customary to average the total membership at the ages of 7-12, inclusive. In Toronto an examination of the records shows that ages 6-11, inclusive, are more representative. The calculation which follows shows the estimated number of beginners for September, 1916, September, 1917, and September, 1918.

| AGE | Sept., 1916 | Sept., 1917 | Sept., 1918 |
|---|---|---|---|
| 6 yrs. | 6,556 | 6,649 | 6,995 |
| 7 " | 6,945 | 7,601 | 7,927 |
| 8 " | 7,387 | 7,586 | 7,730 |
| 9 " | 6,897 | 7,484 | 7,590 |
| 10 " | 6,410 | 6,876 | 7,588 |
| 11 " | 6,224 | 6,358 | 7,034 |
| Divide by 6 | 40,419 | 42,554 | 44,864 |
| Estimated No. of Beginners | 6,737 | 7,092 | 7,477 |

These numbers of beginners would represent not the number of beginners in the Toronto schools, but the number of beginners that there would have to be in the Toronto schools if all in the system had started in it. A comparison, therefore, of the number of Senior Fourth children with the number of beginners will not be an exact index of the efficiency of the Toronto schools, since the result will be modified by the presence of large numbers of children who started school elsewhere. Since the problem is not to fix praise or blame but to measure conditions which exist and must be dealt with, the method used is sufficiently accurate to be of value. The main requisite is that the same method be used each year. This will insure that tendencies will become apparent from a consideration of the figures.

The membership of the grades of the elementary schools at the three periods considered were as follows:

| GRADE | Sept., 1916 | Sept., 1917 | Sept., 1918 |
|---|---|---|---|
| Junior I........ | 10,998 | 11,298 | 11,385 |
| Senior I........ | 7,136 | 7,409 | 7,831 |
| Junior II........ | 6,798 | 6,844 | 6,922 |
| Senior II........ | 6,346 | 6,857 | 7,102 |
| Junior III...... | 6,754 | 7,643 | 8,262 |
| Senior III...... | 5,474 | 6,083 | 6,935 |
| Junior IV....... | 4,478 | 4,580 | 5,084 |
| Senior IV....... | 3,460 | 3,709 | 3,620 |
| TOTAL...... | 51,444 | 54,423 | 57,141 |

In order to make comparison easy the membership of each grade per 1000 beginners is given below.

## MEMBERSHIP PER THOUSAND BEGINNERS

| GRADE | Sept., 1916 | Sept., 1917 | Sept., 1918 |
|---|---|---|---|
| Junior I ........ | 1,632 | 1,593 | 1,522 |
| Senior I ........ | 1,059 | 1,044 | 1,047 |
| Junior II ........ | 1,009 | 965 | 926 |
| Senior II ........ | 942 | 967 | 950 |
| Junior III ........ | 1,003 | 1,078 | 1,105 |
| Senior III ........ | 813 | 858 | 928 |
| Junior IV ........ | 665 | 646 | 680 |
| Senior IV ........ | 513 | 523 | 484 |
| TOTAL ...... | 7,636 | 7,674 | 7,642 |

Several striking facts appear on the face of these figures. For example:

1. The relative number of children in the Junior 1st has decreased appreciably in three years notwithstanding a large increase in the number of beginners. This indicates a great reduction in retardation in the Junior 1st.
2. The relative number of children in the Senior 1st, and particularly the Junior 2nd, has been reduced. This also means a reduction of retardation and a stimulation of promotion.
3. The membership of the Senior 2nd has slightly, and of the Junior 3rd, has greatly increased throwing the centre of gravity of school membership nearer to the later years as it should be.
4. The relative membership of the Senior 3rd has greatly increased. This probably represents the reduction of dropping out of school in this grade.
5. The relative membership of the Junior 4th has slightly increased.
6. The relative membership of the Senior 4th increased in 1917, but decreased greatly in 1918. This might indicate a temporary large demand for boys and girls in commerce and production.
7. That the membership of the first four grades has decreased relatively to that of the last four, and vice versa, except in the one case noted above, indicating both that retardation in the system as a whole has been greatly reduced, and that the schools are retaining larger numbers than formerly at least to the end of the Senior 3rd.

8. The efficiency of the system as regards retardation and elimination, on the basis of the number of beginners and the number in the Senior 4th, would be respectively $\frac{513}{1000}$, $\frac{523}{1000}$ and $\frac{484}{1000}$. This apparent decrease is not real, as it is based on a non-characteristic reduction of the membership of the Senior 4th in 1918. It is important that schools should retain pupils until the Senior 3rd and Junior 4th. Increases here are almost as important as in the Senior 4th. Based on the average membership (a) of the last two years, and (b) of the last three years, the fractions given above would be modified as follows:

$$(a)\quad \frac{589}{1000} \qquad \frac{585}{1000} \qquad \frac{582}{1000}$$

$$(b)\quad \frac{664}{1000} \qquad \frac{676}{1000} \qquad \frac{697}{1000}$$

An examination of the records of the department indicates that the average length of the course from the beginning of the Junior 1st to the end of the Senior 4th was seven years and one month in 1916; seven years and three months in 1917, and the same in 1918. If we assume the average to be seven years and three months, and disregard the effect of deaths on the membership, the ideal membership of a system averaging 1000 beginners would be 7300. Any excess over 7300 would indicate an economic burden. The ideal membership for the three years mentioned on the basis of 1000 beginners were, respectively, 7636, 7674, and 7642. The economic efficiency on this score therefore would be represented by the following fractions:

$$\frac{7300}{7636} \qquad \frac{7300}{7674} \quad \text{and} \quad \frac{7300}{7642}$$

The indices of efficiency for the three years, therefore, as to retardation, elimination and total enrollment would be:

1. On the basis of the membership of the Senior 4th:

(1916) $\frac{513}{1000}$ by $\frac{7300}{7636}$ or on a percentage basis...... 49.04%

(1917) $\frac{523}{1000}$ by $\frac{7300}{7674}$ or on a percentage basis...... 49.76%

(1918) $\frac{484}{1000}$ by $\frac{7300}{7642}$ or on a percentage basis...... 46.21%

2. On the basis of the average membership of the last two grades:

(1916) $\frac{589}{1000}$ by $\frac{7300}{7636}$ or on a percentage basis...... 56.31%

(1917) $\frac{585}{1000}$ by $\frac{7300}{7674}$ or on a percentage basis. .... 55.65%

(1918) $\frac{582}{1000}$ by $\frac{7300}{7642}$ or on a percentage basis...... 55.59%

3. On the basis of the average membership of the last three grades:

(1916) $\frac{664}{1000}$ by $\frac{7300}{7636}$ or on a percentage basis...... 63.48%

(1917) $\frac{676}{1000}$ by $\frac{7300}{7674}$ or on a percentage basis...... 64.31%

(1918) $\frac{697}{1000}$ by $\frac{7300}{7642}$ or on a percentage basis...... 66.58%

The third of these estimates is the most representative of actual conditions and, at present, a fairer standard. After the present methods of measurement and the individual record cards now in use have been operative for seven or eight years, the first and more exacting standard will be the correct one, until the results as taken from the cards themselves are available. In the meantime, the index demonstrates that the public schools are grappling successfully with retardation and dropping-out.

While, of course, close comparisons are not possible, it is interesting to note that only two out of eight American cities listed in "Laggards in Our Schools" (1909—Russell Sage Foundation) as having over 4000 beginners in their schools annually, had a higher index of efficiency than that of Toronto according to the second standard described above.

The gravity and relative size of the problems of retardation, over-age and elimination vary for different schools and districts. The racial, social, economic and living conditions have a very direct bearing on all. This is too evident to require discussion. It goes without saying that many of the causes of educational waste lie almost, or quite entirely, outside the school as at present constituted. Should not the method of school organization vary with the needs of the locality? Has not the time arrived when the institutional school type should be developed in several of the down-town districts, in order to bring about greater co-ordination between home and school, a higher appreciation of Canadian citizenship, heightened appreciation of social values, and greater economic efficiency?

The table which follows sets forth certain facts with regard to two schools—one (I.) in a prevailingly foreign district in an under-privileged neighborhood, and the other (II.) in one of the finest residential districts in the city.

| GRADES | I.* | | | II. | | |
|---|---|---|---|---|---|---|
| | Under Age | Normal Age | Over Age | Under Age | Normal Age | Over Age |
| Kindergarten | ...... | 61.5% | 38.5% | ...... | 36.8% | 63.2% |
| Junior I | 3.1% | 45.8% | 51.1% | ...... | 17.9% | 82.1% |
| Senior I | ...... | 8.1% | 91.9% | ...... | 41.7% | 58.3% |
| Junior II | 2.6% | 41. % | 56.4% | 16.7% | 38.9% | 44.4% |
| Senior II | 11.1% | 25. % | 63.9% | 20.9% | 31.3% | 47.8% |
| Junior III | ...... | 5.6% | 94.4% | 24.2% | 36.4% | 39.4% |

It will be noticed that while School II. starts with a much greater percentage of overage children than School I. in the Senior First, it ends the Junior 3rd with a much lower percentage of overage. As has been shown, children entering late do not make up all the lee-way even by graduation, so that other causes must operate to account for the rapid overhauling of School I. by School II. Are not economic and living conditions largely responsible?

---

* Not quite exact on account of a few duplications.